IN THE CLAIMS:

Claim 1 (currently amended) A process for synthesising hydrocarbons, which process includes

feeding a gaseous feedstock comprising hydrogen, carbon monoxide and carbon dioxide, into a dimethyl ether (DME) synthesis stage, the gaseous feedstock having a syngas number (SN) between ~~1.8~~ 1.85 and ~~2.2~~ 2.15, where

$$SN = \frac{[H_2] - [CO_2]}{[CO] + [CO_2]}$$

and where $[H_2]$, $[CO]$ and $[CO_2]$ respectively are the molar proportions of hydrogen, carbon monoxide and carbon dioxide in the gaseous feedstock;

in the DME synthesis stage, converting a portion of the gaseous feedstock into a DME product and gaseous products;

separating the DME product from unreacted gaseous reactants and the gaseous products to obtain a tail gas comprising hydrogen and carbon monoxide and carbon dioxide;

recycling a portion of the tail gas from the DME synthesis stage to the DME synthesis stage, a ratio of tail gas recycle to gaseous feedstock being between about 0 : 1 and about 2 : 1;

feeding the tail gas, comprising hydrogen and carbon monoxide and

carbon dioxide with a syngas number (SN) between 1.85 and 2.15 into a Fischer-Tropsch hydrocarbon synthesis stage, which is a two-phase high temperature catalytic Fischer-Tropsch hydrocarbon synthesis stage; and

allowing the hydrogen, carbon monoxide and carbon dioxide at least partially to react catalytically in the Fischer-Tropsch hydrocarbon synthesis stage to form hydrocarbons, the hydrocarbons formed in the Fischer-Tropsch hydrocarbon synthesis stage thus being gaseous hydrocarbons at the operating pressure and temperature of the Fischer-Tropsch hydrocarbon synthesis stage.

Claim 2 (previously presented) The process as claimed in claim 1, in which converting a portion of the gaseous feedstock into a DME product and gaseous products includes contacting the gaseous feedstock with a catalyst or catalysts that enhance methanol synthesis and methanol dehydration reactions.

Claim 3 (previously presented) The process as claimed in claim 1, in which the DME product includes a mixture of DME and methanol and which includes converting the DME product into light olefins in a light olefins production stage without increasing the DME concentration in the DME product.

Claim 4 (previously presented) The process as claimed in claim 1, in which the DME synthesis stage is operated at a pressure of between about 50 bar(g) and about 100 bar(g) to ensure that overall $CO + CO_2$ conversion in the DME synthesis stage is between about 20 % and about 80 %.

Claim 5 (previously presented) The process as claimed in claim 1, which includes recycling some of the Fischer-Tropsch hydrocarbon synthesis stage tail gas to the Fischer-Tropsch hydrocarbon synthesis stage, to obtain high overall $CO + CO_2$ conversions in the Fischer-Tropsch hydrocarbon synthesis stage of at least 80 %.

Claim 6 (previously presented) The process as claimed in claim 1, which includes recycling some of the Fischer-Tropsch hydrocarbon synthesis stage tail gas to the Fischer-Tropsch hydrocarbon synthesis stage, a ratio of Fischer-Tropsch tail gas recycle to the tail gas from the DME synthesis stage fed to the Fischer-Tropsch hydrocarbon synthesis stage being between 2.5 : 1 and 1 : 1.5.

Claim 7 (previously presented) The process as claimed in claim 3, which includes, in a separation stage, separating light hydrocarbons from the Fischer-Tropsch hydrocarbon synthesis stage tail gas and converting these light hydrocarbons, together with the DME product, into light olefins with a carbon number from 2 to 4 in the light olefins production stage.

Claim 8 (previously presented) The process as claimed in claim 3, in which gaseous hydrocarbons and any unreacted hydrogen, unreacted carbon monoxide, and CO_2 are withdrawn from the Fischer-Tropsch hydrocarbon synthesis stage, and separated into one or more condensed liquid hydrocarbon streams, a reaction water stream and a Fischer-Tropsch hydrocarbon synthesis stage tail gas, the process further including treating the condensed liquid

hydrocarbons from the Fischer-Tropsch hydrocarbon synthesis stage, to provide a light hydrocarbon fraction, including naphtha, which is converted, together with the DME product, in the light olefin production stage to light olefins, and to provide a diesel fraction.

Claim 9 (previously presented) The process as claimed in claim 3, which includes using separation equipment to recover C_2-C_4 light olefins from the Fischer-Tropsch hydrocarbon synthesis stage and in which C_2-C_4 light olefins from the light olefins production stage are recovered using the same separation equipment that is used to recover the C_2-C_4 light olefins produced by Fischer-Tropsch synthesis.

Claim 10 (previously presented) The process as claimed in claim 1, in which the two-phase high temperature catalytic Fischer-Tropsch hydrocarbon synthesis stage employs an iron catalyst.